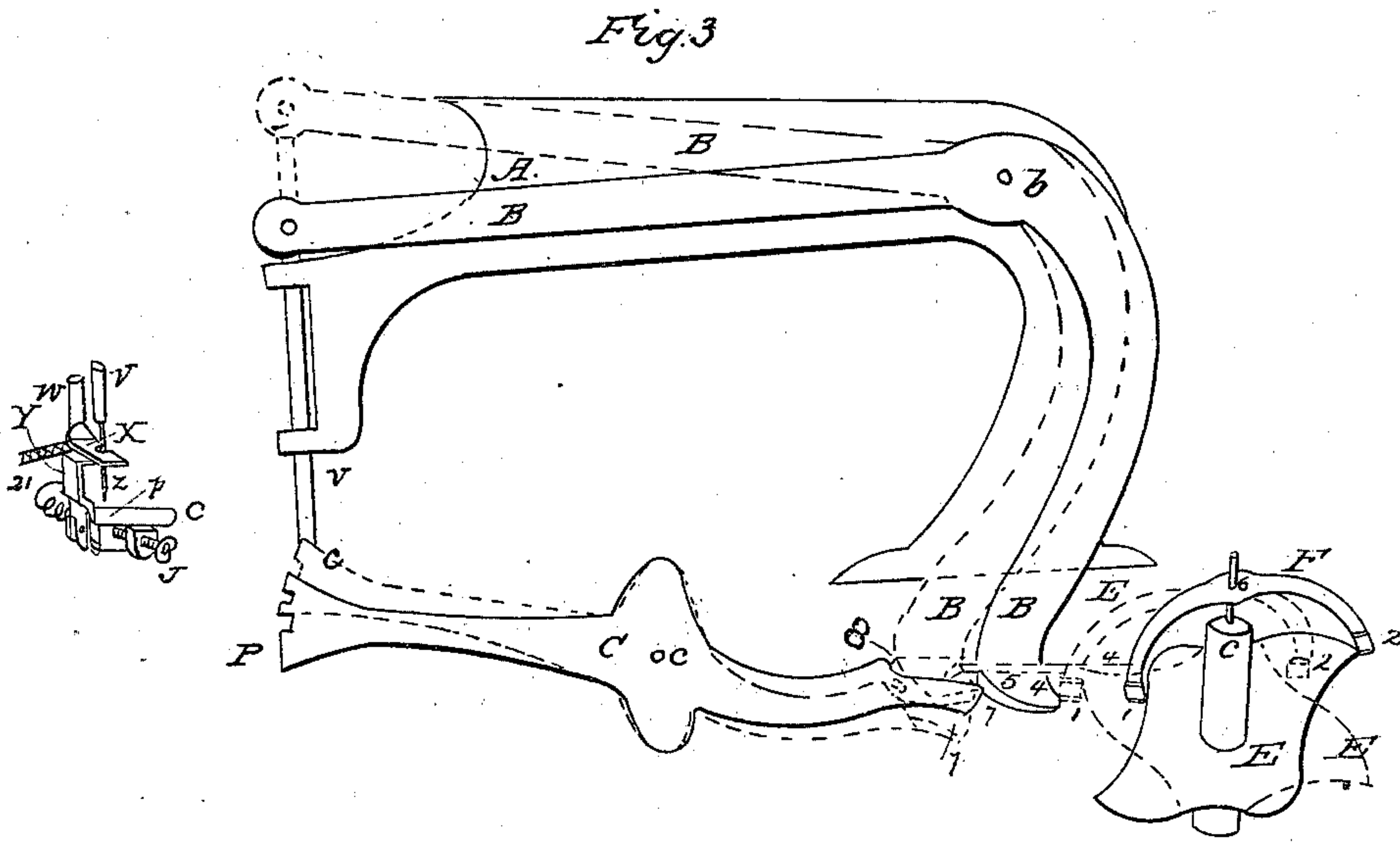
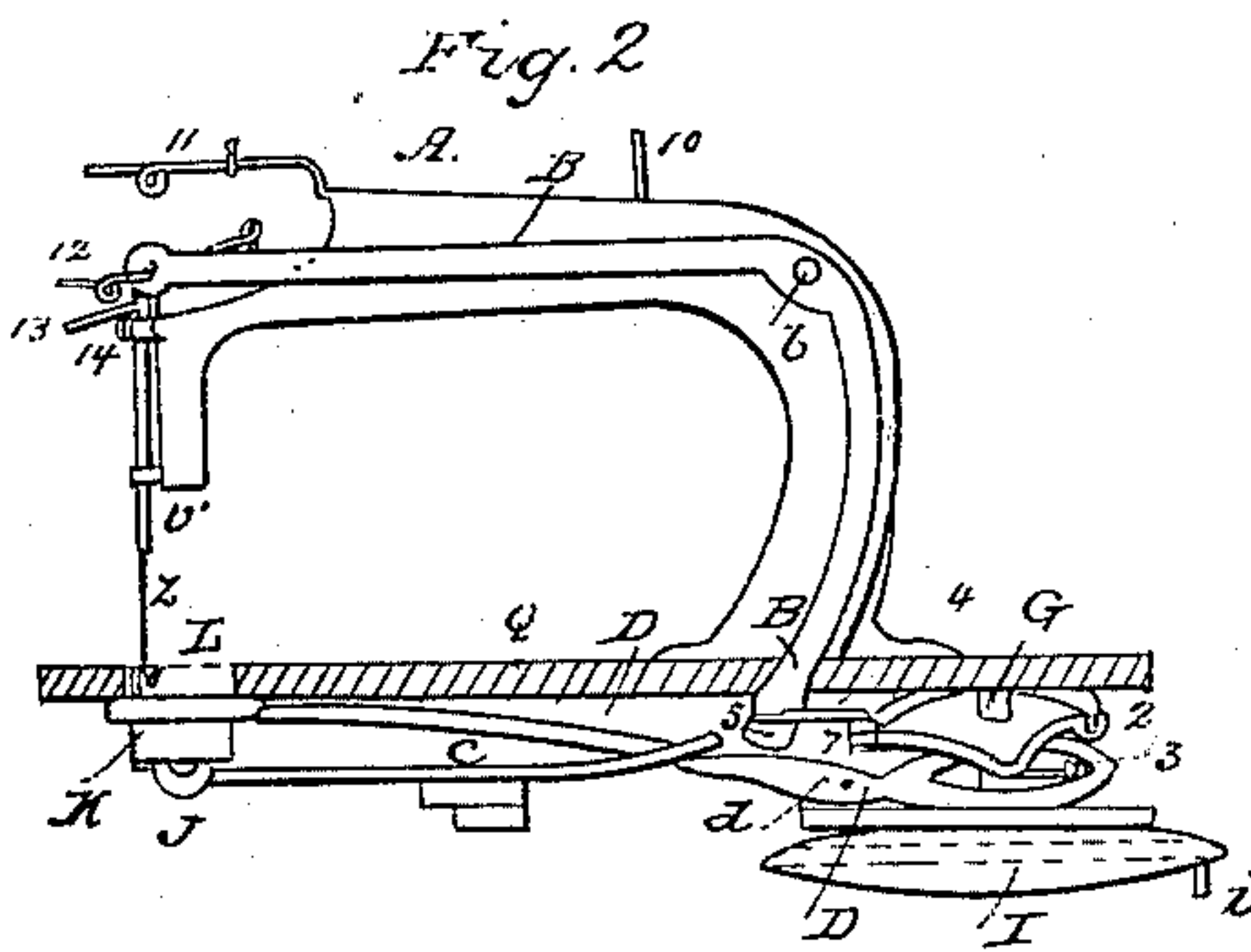
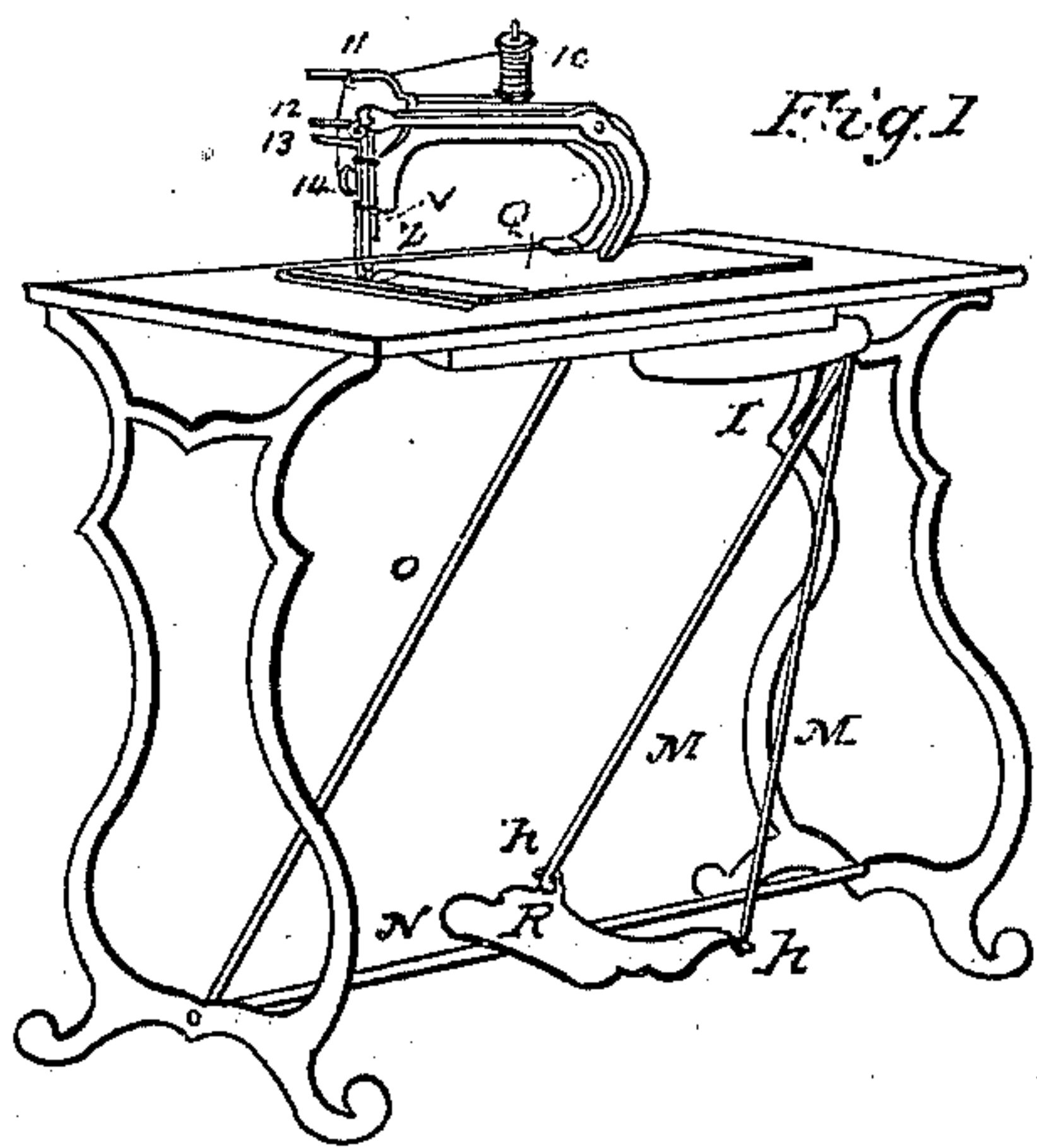


J. F. ANDREWS.
Sewing Machine.

No. 58,366.

Patented Oct. 2, 1866.



Witnesses
Wm. B. Miley
Jacob H. Haffner

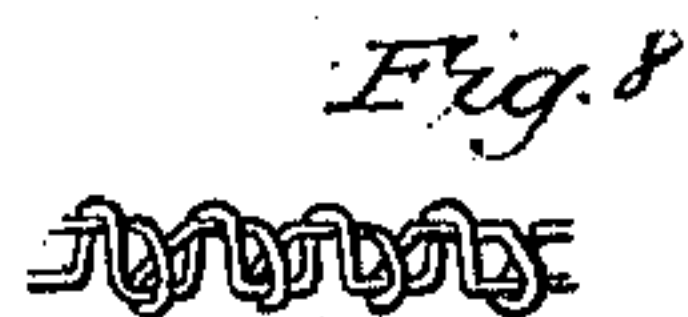
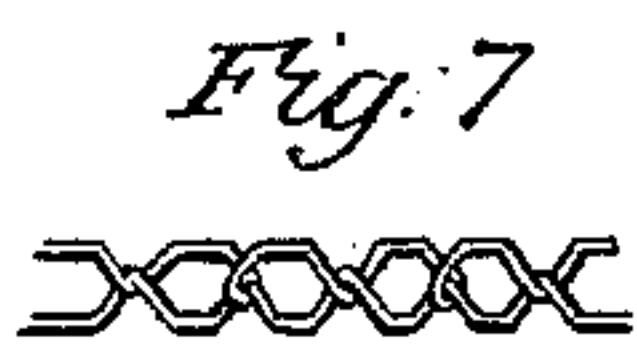
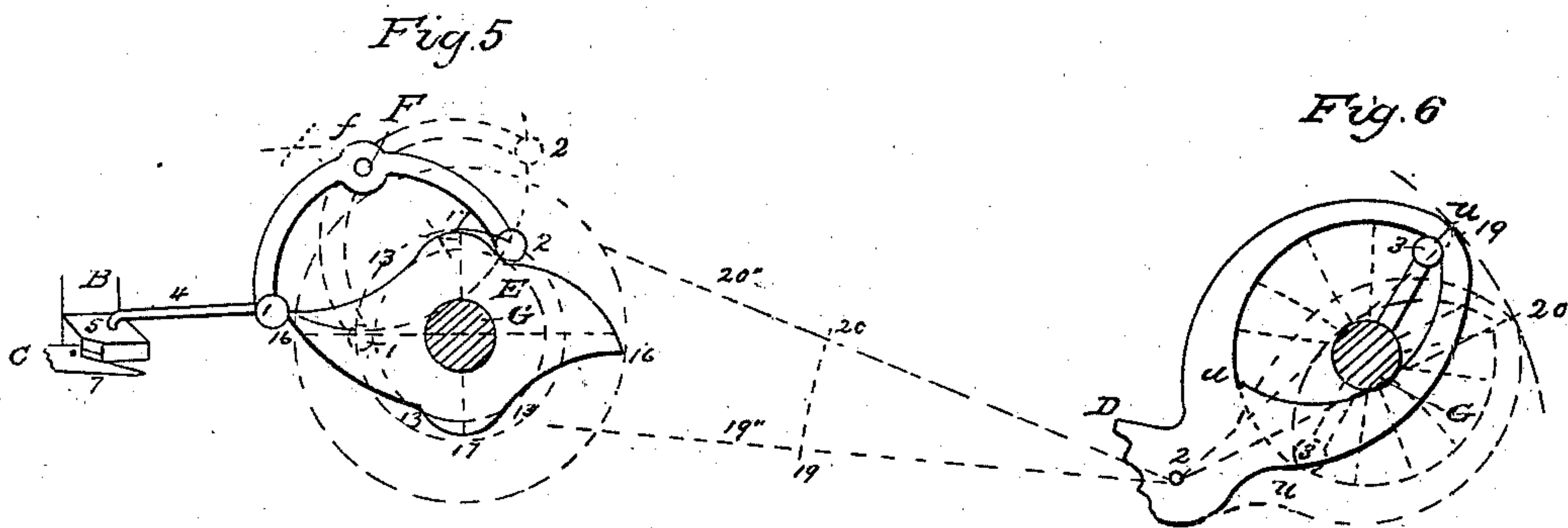
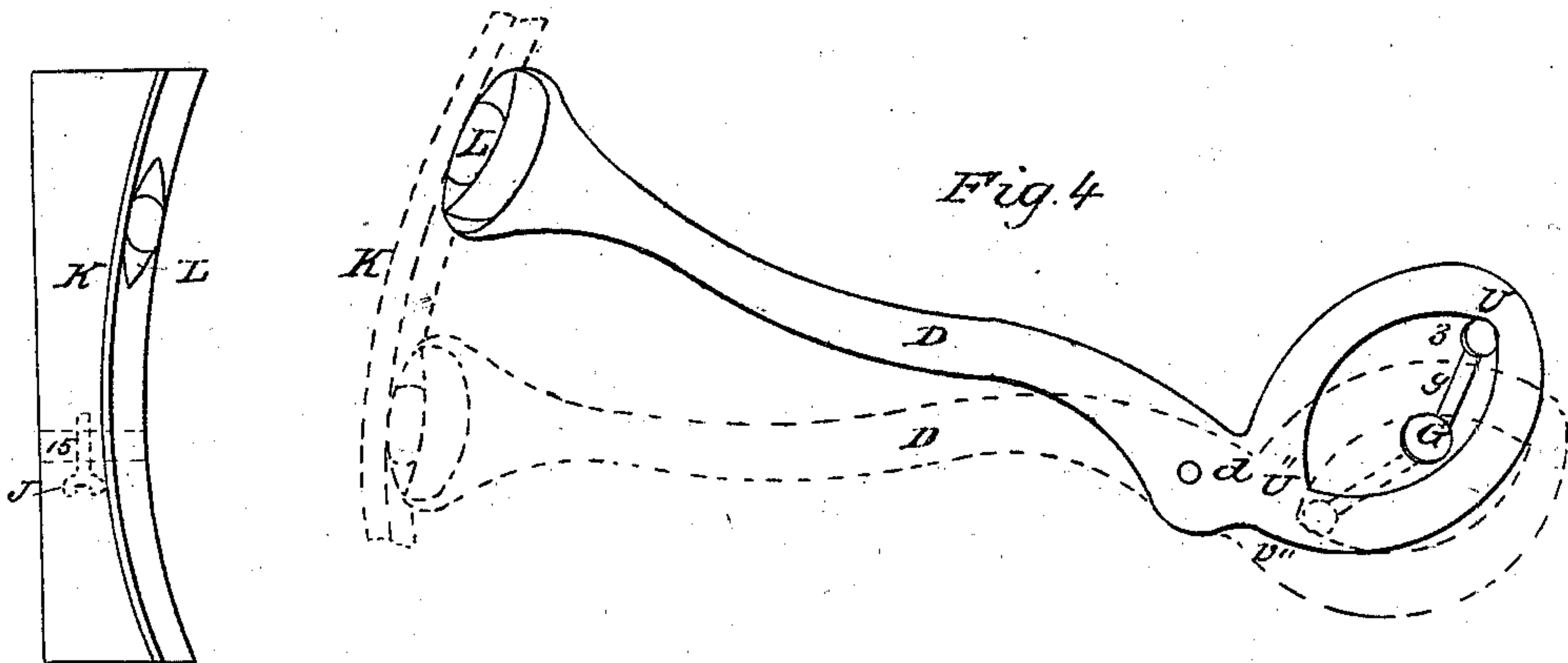
Inventor
Jacob F. Andrews

J. F. ANDREWS.
Sewing Machine.

2 Sheets—Sheet 2.

No. 58,366.

Patented Oct. 2, 1866.



Witnesses
H. B. Wiley
Jacob Shaffer

Inventor
Jacob F. Andrews

UNITED STATES PATENT OFFICE.

JACOB F. ANDREWS, OF NEW PROVIDENCE, PENNSYLVANIA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 58,366, dated October 2, 1866.

To all whom it may concern:

Be it known that I, JACOB F. ANDREWS, of New Providence, in the county of Lancaster and State of Pennsylvania, have invented new and useful Improvements in the Device for Operating Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the machine. Fig. 2 is a horizontal view, to show the relative position of its mechanism. Figs. 3 and 4 are enlarged, to show the change of position in the several parts employed by differently-colored diagrams; Figs. 5 and 6, the geometrical construction, more clearly defined, of the cam and verge movement and the eccentric motion and throw of the shuttle-beam. Figs. 7 and 8 illustrate the stitches made by this machine, which consists in making every alternate stitch a common lock-stitch, and the intermediate stitch a twisted lock or rather a knot stitch.

The stand or table, Fig. 1, shows the character of this machine. The mechanism for operating and driving the needle and shuttle is contained on and under a bed-plate, Q, set into an opening in the table. The horizontal combined crank and balance wheel I is beneath the machine.

The treadle H is centrally hinged to a cross or foot bar, N, on which it has a vibrating motion. This treadle is provided with a projection, *h*, on each side, to which the connecting-rods M M are hinged. These rods M are united above, and connected to the crank-pin *i* in such a manner as to play freely on the crank-pin and treadle-arms by the rocking motion given to the treadle H by the foot, and the crank or fly wheel is thus put in motion.

A is the ordinary goose-neck, for the support of the needle-bar, needle-stock, spool, and usual fixings, in which there is no special novelty claimed, and parts well understood. The needle-bar B is held by a pivot, *b*, on the goose-neck, and extends down its side through the bed-plate Q, where it is provided with a projecting heel, 5, by which it is also connected by a rod, 4, to an arm or friction-roller, 1, on one end of a verge, F, turning on a pivot,

6. There is also a friction-roller, 2, on the other curved end or arm of the said verge F. These friction-rollers 1 2 operate or come in contact, alternately, with the cam E, which is calculated to produce a uniform and intermittent movement, or a uniform rectilinear and alternate motion, with a pause at each extremity of the stroke, to adapt it to the motions of the shuttle and needle-bar. This heel of the needle-bar also strikes an inclined plane, 7, on the inner end of the feed-bar C, held by a pivot at *c*, every time the said heel is pushed forward and the needle raised out of the cloth, striking at the same time (when its forward end is raised up against the cloth) a shoulder, 8, at the terminus of the inclined plane of the feeder, which moves it and the cloth as far as the desired length of the stitch, when the feeder drops in place as the needle enters the cloth in its downward course, and flies back against the end of a regulating-screw, J, the adjustment of which screw is made to regulate the length of the stitches.

There is a spring, 21, to press the outer end of the feeder against the end of the screw J when the compound action of the heel on the needle-bar has performed its office. These movements are induced by the cam E and verge F.

The shuttle-bar D is pivoted at *d*, its open spoon-shaped elliptic inner end surrounding the same shaft G beneath the cam E.

There is an arm, 9, with or without a friction-roller, 3, resting against the inner segment of a circle of a radius equal to its combined length, forming the two sides of an elliptical opening of the shuttle-bar surrounding said shaft G, in such a manner that the bar remains stationary while the arm or friction-roller 3 traverses the section from U' to U'', at which points—the union of both segments—the bar is moved at once its full extent. The other end is in close contact with the shuttle-race, and provided with curved arms to embrace the shuttle L, moving the shuttle back and forth with intervals of rest while the needle is rising to its full extent, descended, and raised again, to form the loop, at which point the opposite union of said segments U' is struck, and the shuttle-bar again moved its entire length, and remains stationary until the intersection U'' is struck, and so on, giving

the needle time to form the loop between each motion of the shuttle.

The diagram Fig. 5, with its dotted lines and twofold coloring, shows the construction and operation of the cam E, in combination with the verge F and its connection with the heel 5 of the needle-beam B, as also the inclined plane 7 and shoulder 8 of the feed-bar c, more clearly than words can explain to those familiar with such movements, which applies equally well to the motions of the shuttle-bar, as illustrated by the diagram Fig. 6, and will enable any one skilled in the art to make and use my invention, in addition to the foregoing specification.

The form of the cam causes the needle to descend, then rise to form the loop, when it remains stationary until the shuttle has run its entire length or course, from one end of the shuttle-race to the other, before it rises again. This cam may be so constructed as to cause the needle to rise and descend two, four, six times, and oftener in each revolution of the fly-wheel.

Figs. 7 and 8 illustrate the stitching where the lock of one stitch is drawn to one side of the cloth, or as far into the cloth as you wish, and the lock of the next stitch to the other side of the cloth, or as far into the cloth as you wish, alternating from one side to the other. This advantage is gained by employing a double-pointed shuttle provided with a series of three or more holes for the passage and tension of the thread, and by being made to pass through the loops formed by the needle both in going back and forward in the shuttle-race. This arrangement enables me to produce stitches which I believe to be new.

By changing the passage of the thread through the central hole in the shuttle, and giving the spool or shuttle thread a greater tension, the lock of the stitch can be brought to the upper side of the cloth, or said lock can be made on the under side. But the manner of stitching illustrated by Fig. 8 is what I term "my new stitch," and it is produced by simply passing the thread through one of the outer holes of the shuttle. The machine will produce a lock-stitch alternately on the upper surface and under surface of the cloth—that is, one lock-stitch on top, the next lock-stitch beneath, alternately.

The shuttle-machines such as are commonly in use pass through the loop in one direction only, and consequently cannot form the alternate top and bottom lock. I am aware, how-

ever, that double-pointed shuttles have been used, but, owing to other defects, have never performed this kind of a stitch. This stitch is satisfactory for sewing light goods more especially, making a neat and firm union of the parts, not easily taken apart without cutting every thread or stitch.

The other novelties in my machine consist in the cam and verge employed for operating the needle and feed, as well as the open ellipse on the hind end of the shuttle-bar, all moved by a balance-wheel or weighted crank-arm, I, on its vertical shaft G, and the swinging treadle with its two connecting-rods to a crank-pin.

I am aware that numerous patents exist embracing a great variety of devices, but none, to my knowledge, embracing the combinations herein presented, though I disclaim each part separately considered, as such may be found applied to other machines used for other purposes.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement of the verge F, moving on its pivot 6, in combination with the connecting-rod 4 and cam E, in the manner and for the purpose specified.

2. The feed-bar C, when operated by the heel 5 of the needle-bar B, in combination with the verge F and its connecting-rod 4, constructed and arranged in the manner set forth and shown.

3. The shuttle-bar D, with its pivot d and elliptical terminus U', forming an elliptical opening which surrounds the vertical shaft G, said shaft having an arm, 9, with or without a friction-pulley, 3, at its end, in contact with the inner edge of said ellipsis U', the whole operating in the manner and for the purpose specified.

4. The treadle H, with its ears h and two connecting-rods, MM, united around the crank-pin i upon the horizontal driving-wheel, all connected in such a manner as to play freely with the motions of the wheel or arm I, in the manner shown and specified.

5. In a sewing-machine, the horizontal fly-wheel or its equivalent, when in connection with a vertical shaft provided with a cam, E, and arm 9, arranged and operating in the manner set forth.

JACOB F. ANDREWS.

Witnesses:

WM. B. WILEY,
JACOB STAUFFER.